# Budd Inlet TMDL Update

Deschutes Advisory Group 5/18/17

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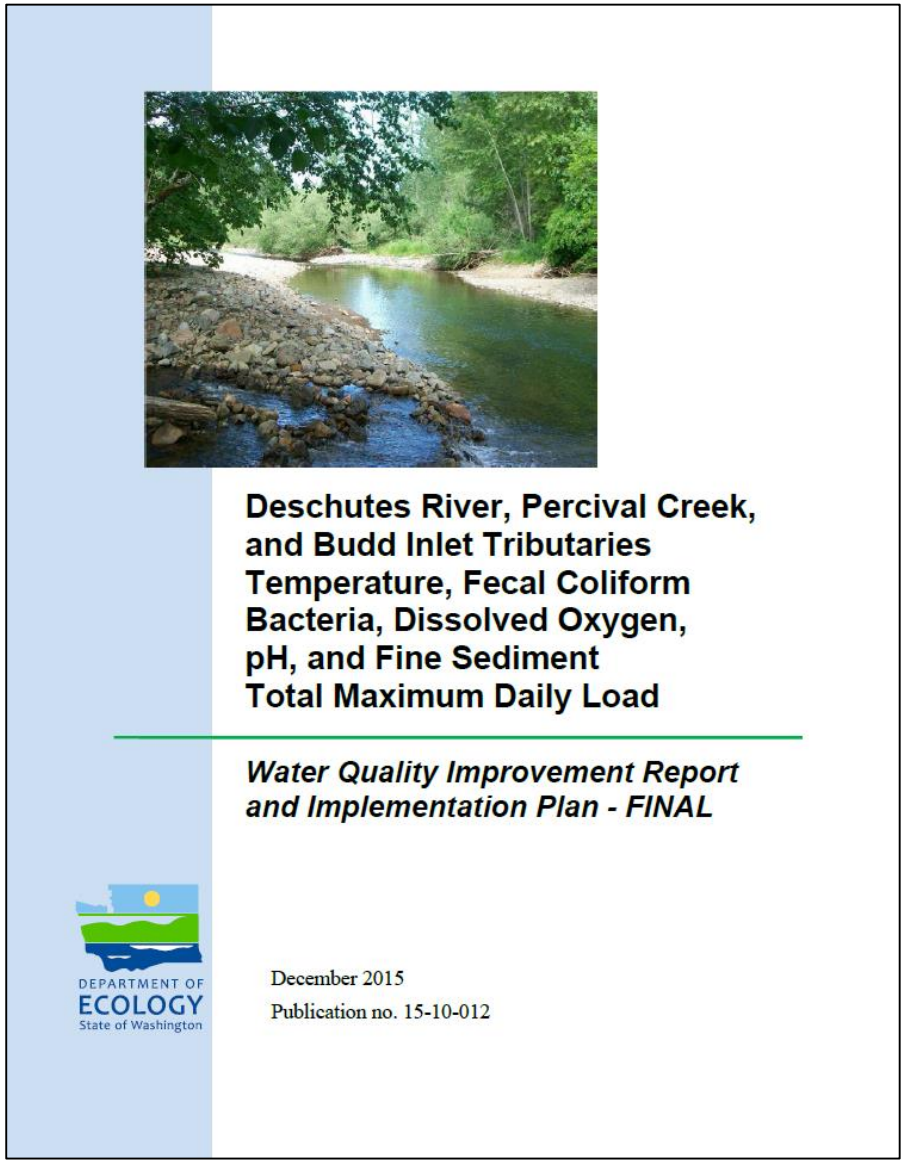
DEPARTMENT OF ECOLOGY
State of Washington

# Today's agenda

- Deschutes TMDL Update
- Budd Inlet Recap
- Recent Modeling
- Plan For 2017

# Deschutes TMDL

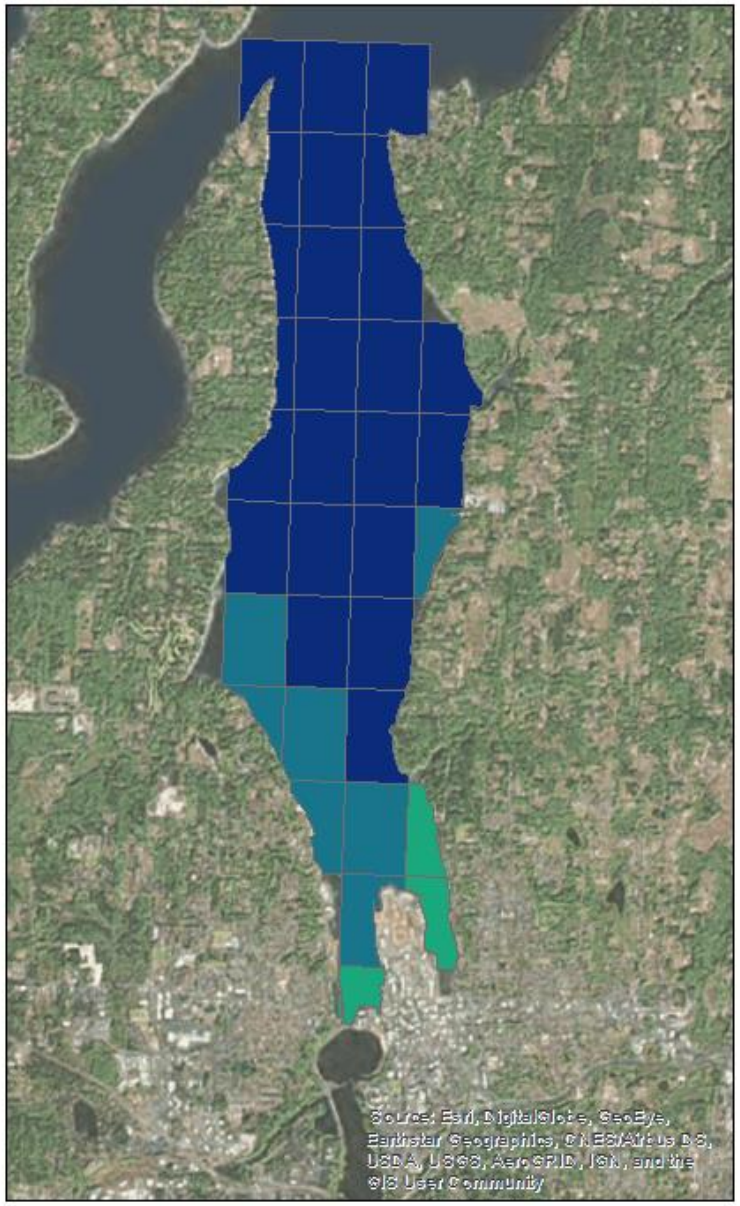
- TMDL for Deschutes River and other creeks.
- Implementation plan covers multiple parameters.
- EPA to approve a subset of listings – full implementation still needed in the watershed.




# Water Quality Standard for Dissolved Oxygen

Outer Budd Inlet: 6 mg/L

Inner Budd Inlet: 5 mg/L



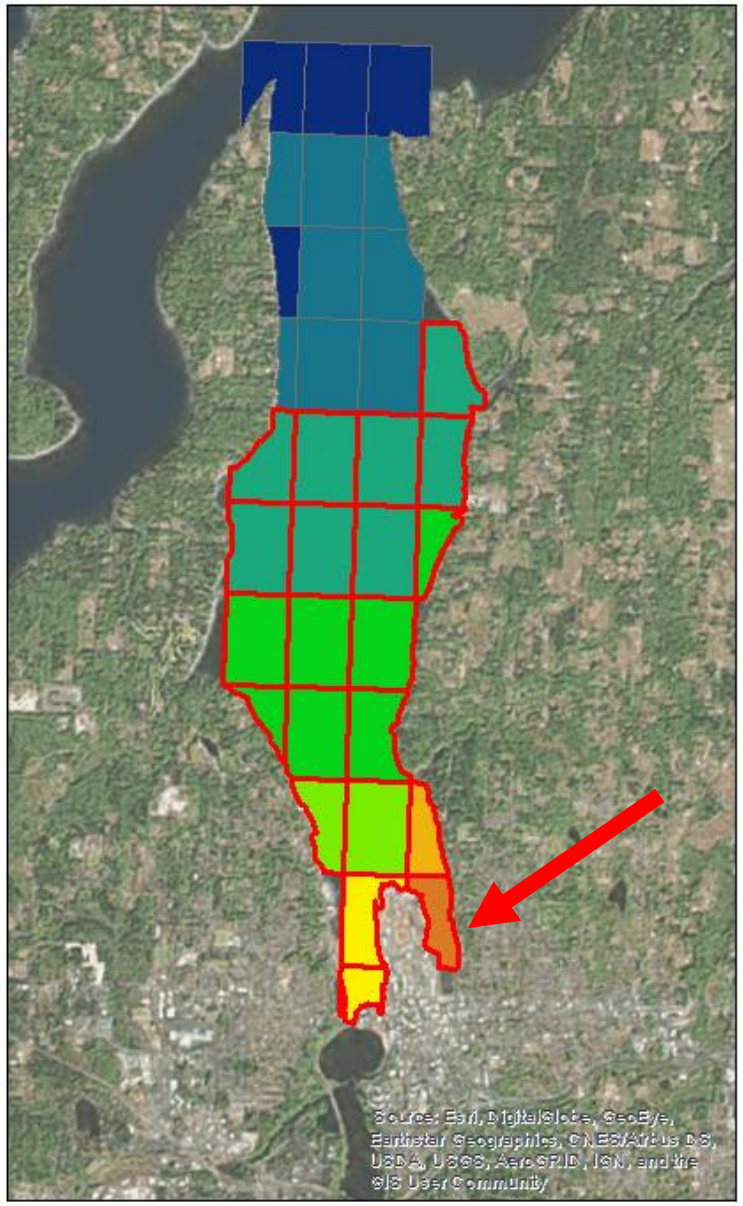

# Natural Conditions

**Dissolved Oxygen (mg/L)**

- <3
- 3.0 - 3.5
- 3.5 - 4.0
- 4.0 - 4.5
- 4.5 - 5.0
- 5.0 - 5.5
- 5.5 - 6.0
- 6.0 - 6.5
- >6.5
- Violation

Modeling of dissolved oxygen under natural conditions in mg/L on the day of the year with lowest dissolved oxygen.

* Note: **NO violations** under natural conditions

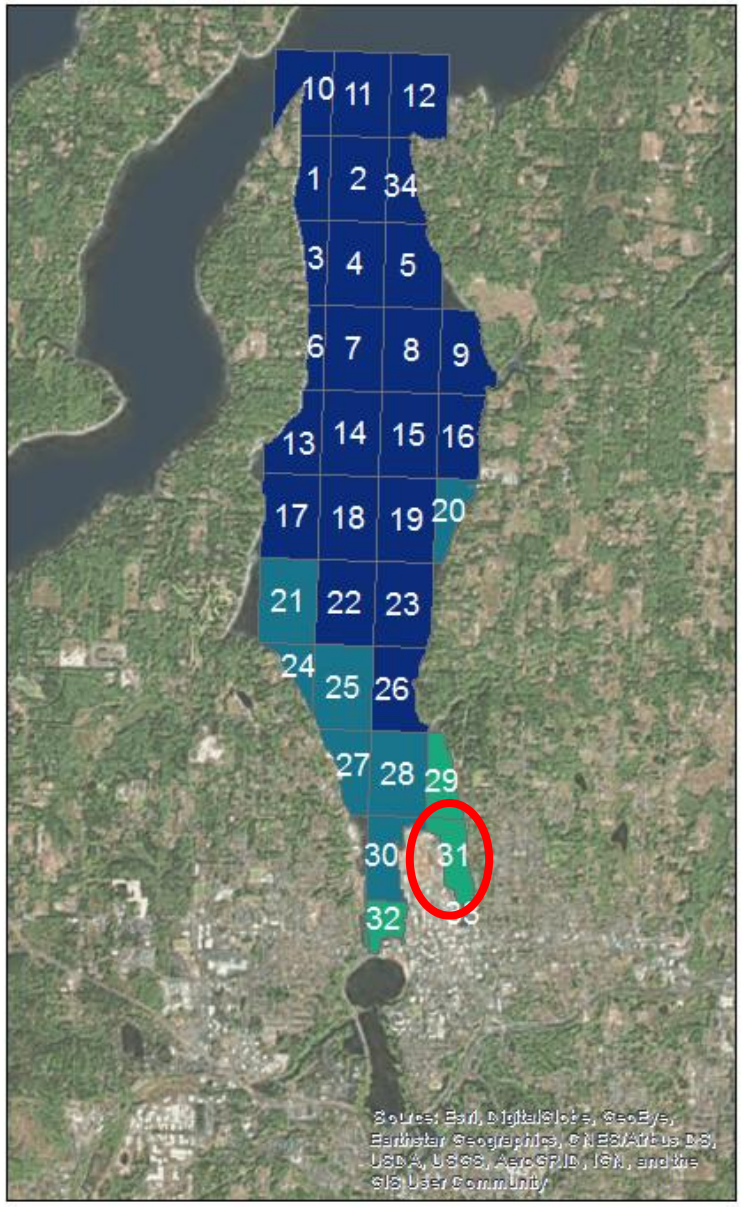



# Existing Conditions

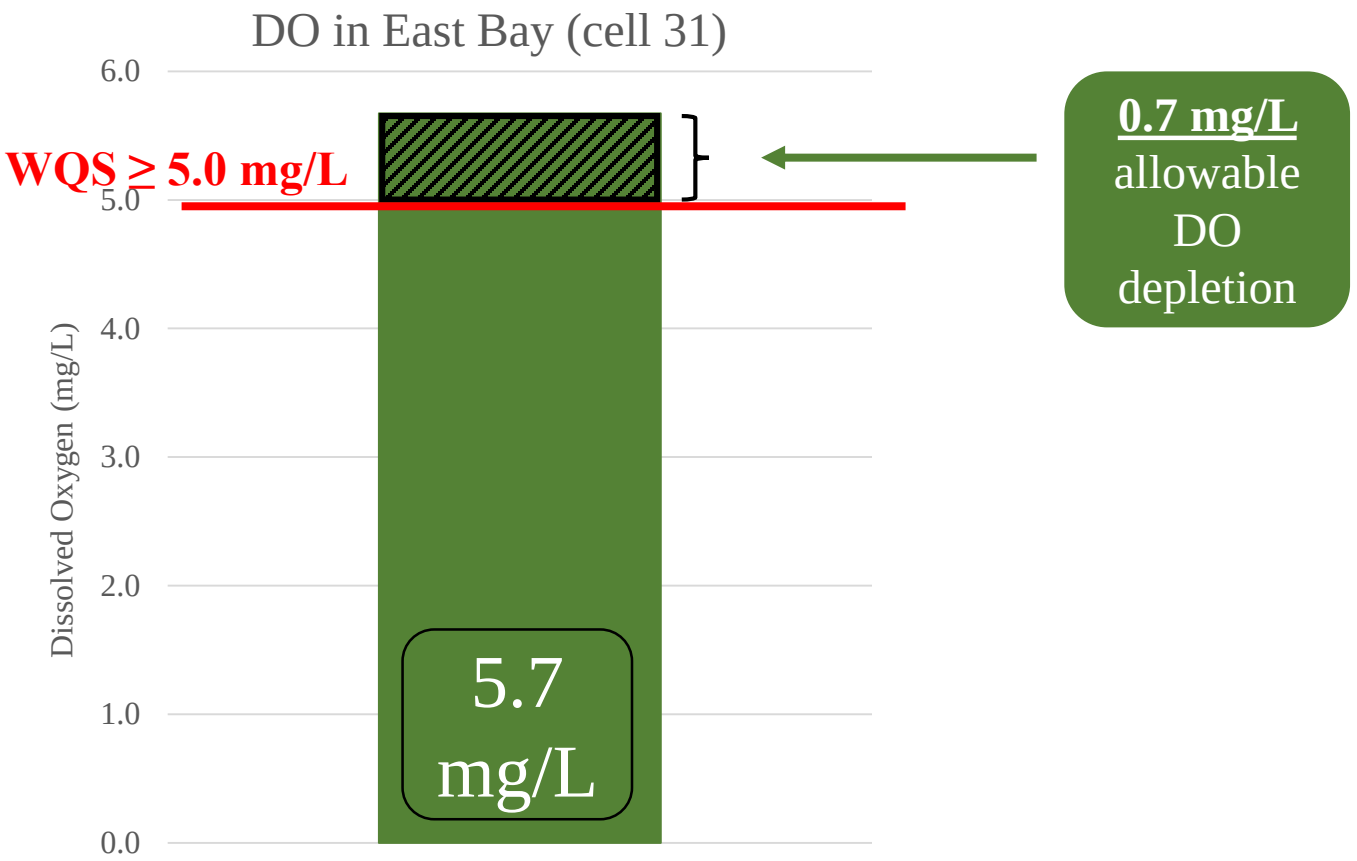
**Dissolved Oxygen (mg/L)**

- <3
- 3.0 - 3.5
- 3.5 - 4.0
- 4.0 - 4.5
- 4.5 - 5.0
- 5.0 - 5.5
- 5.5 - 6.0
- 6.0 - 6.5
- >6.5
- Violation

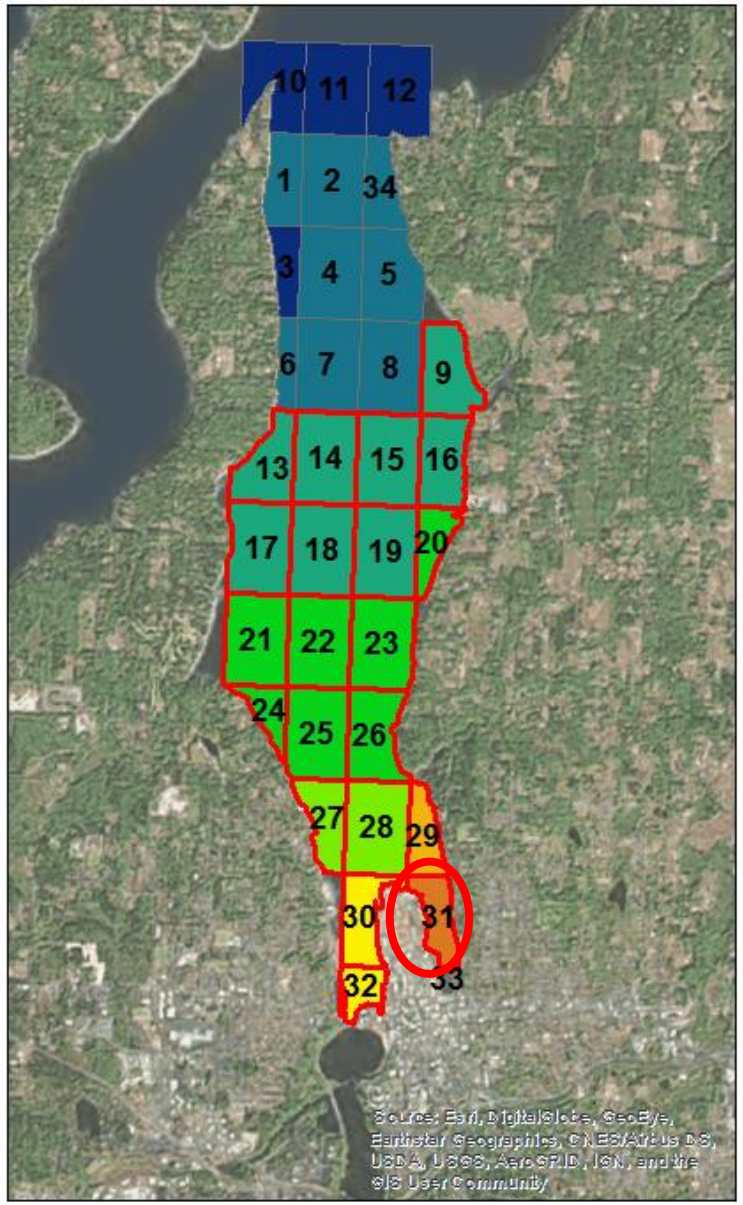
Modeling of dissolved oxygen under existing conditions in mg/L on the day of the year with lowest dissolved oxygen.

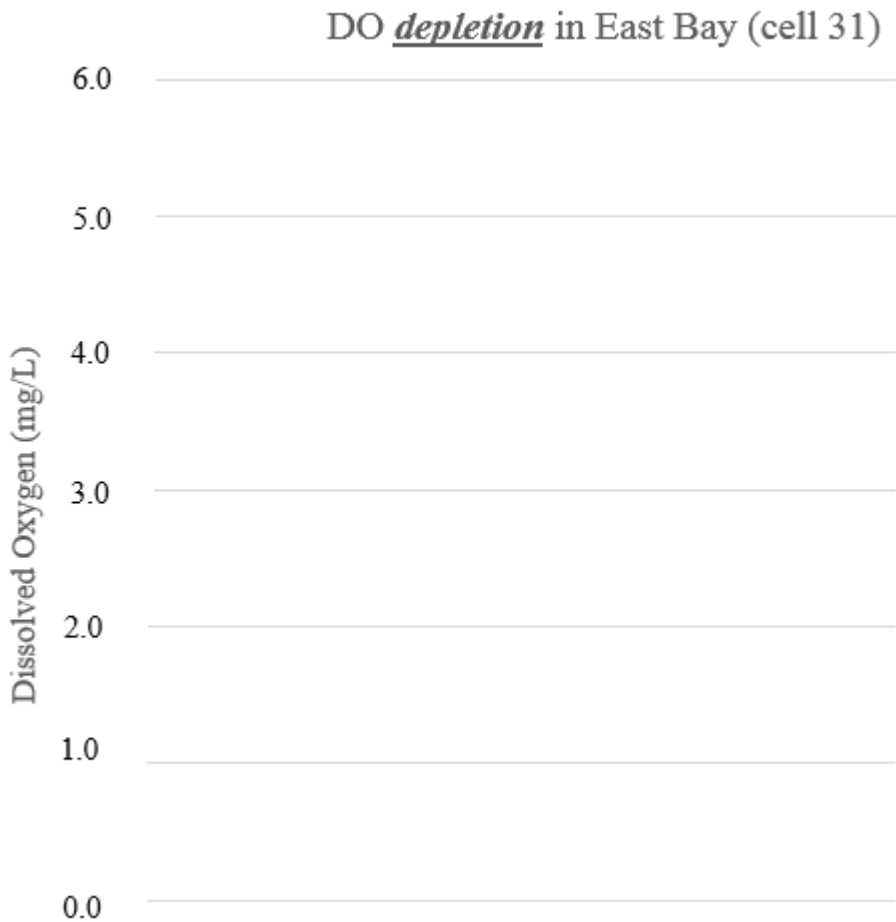



# Natural Conditions

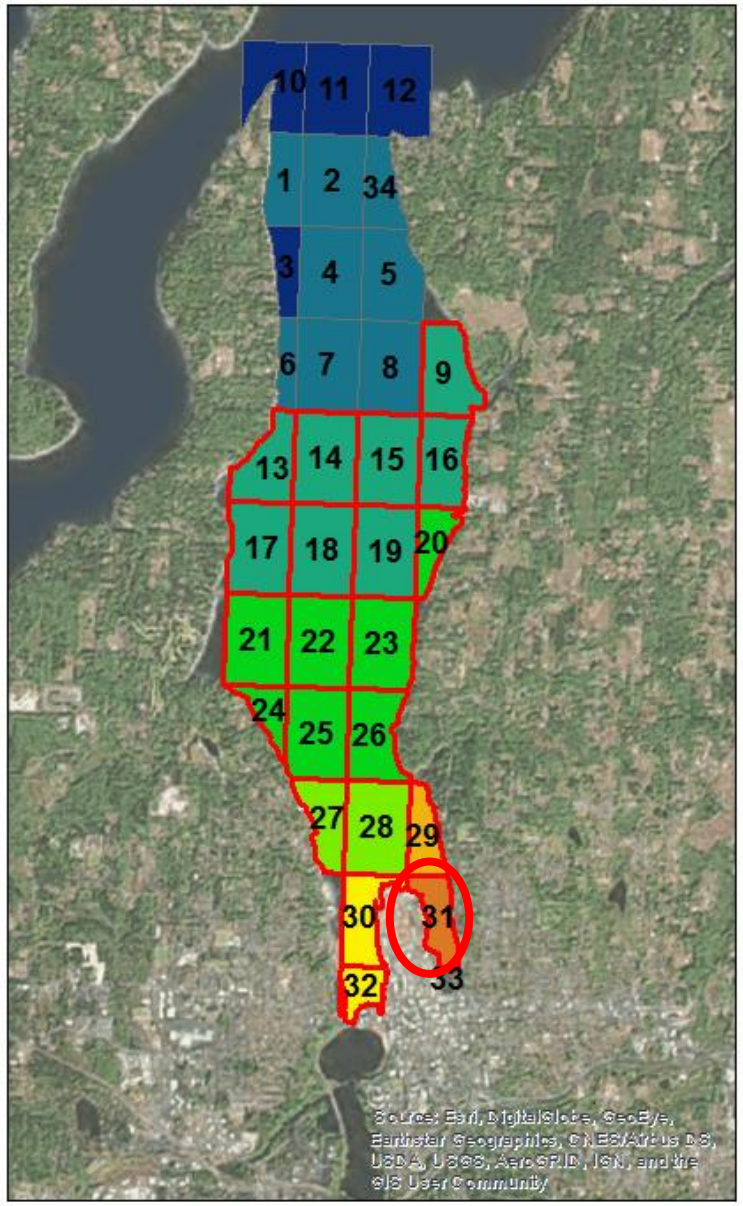


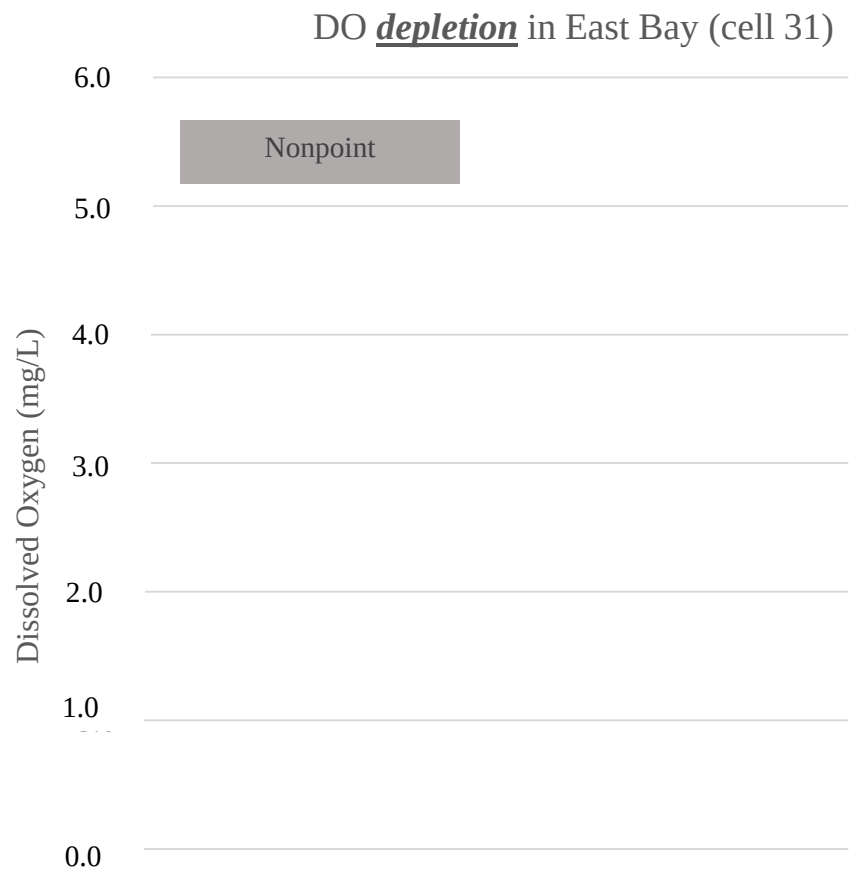
# Existing Conditions



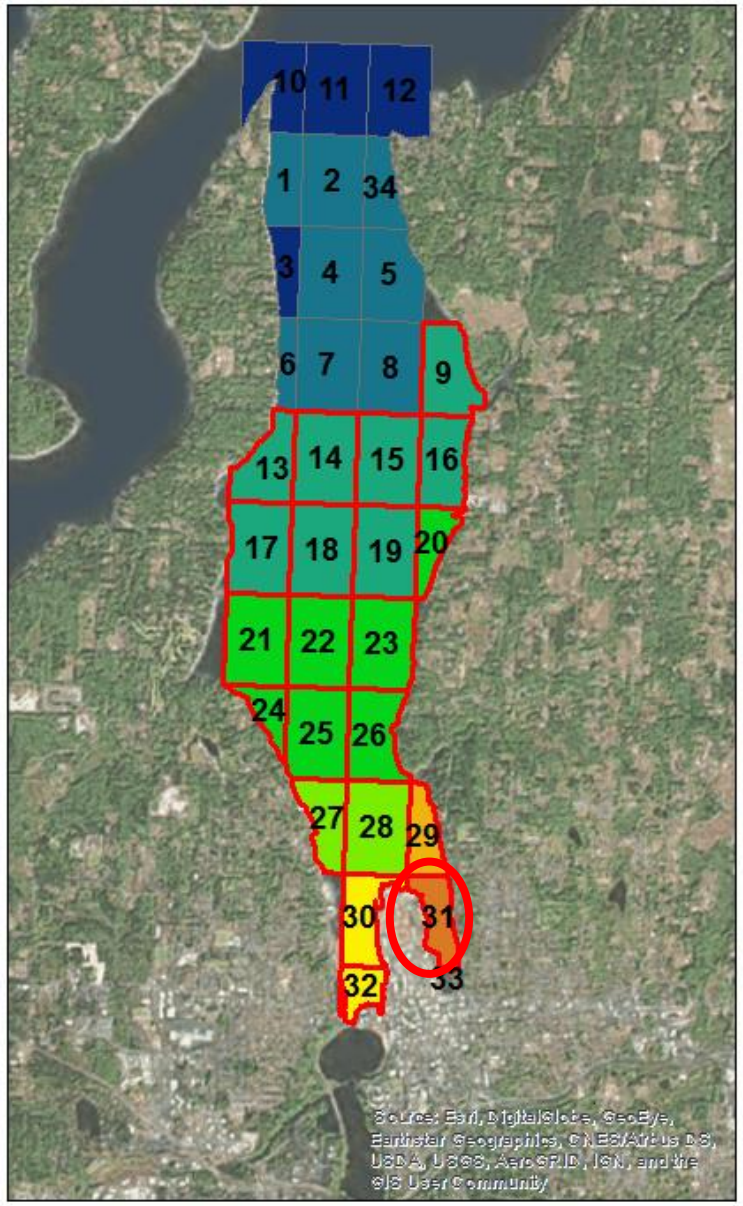
# Existing Conditions

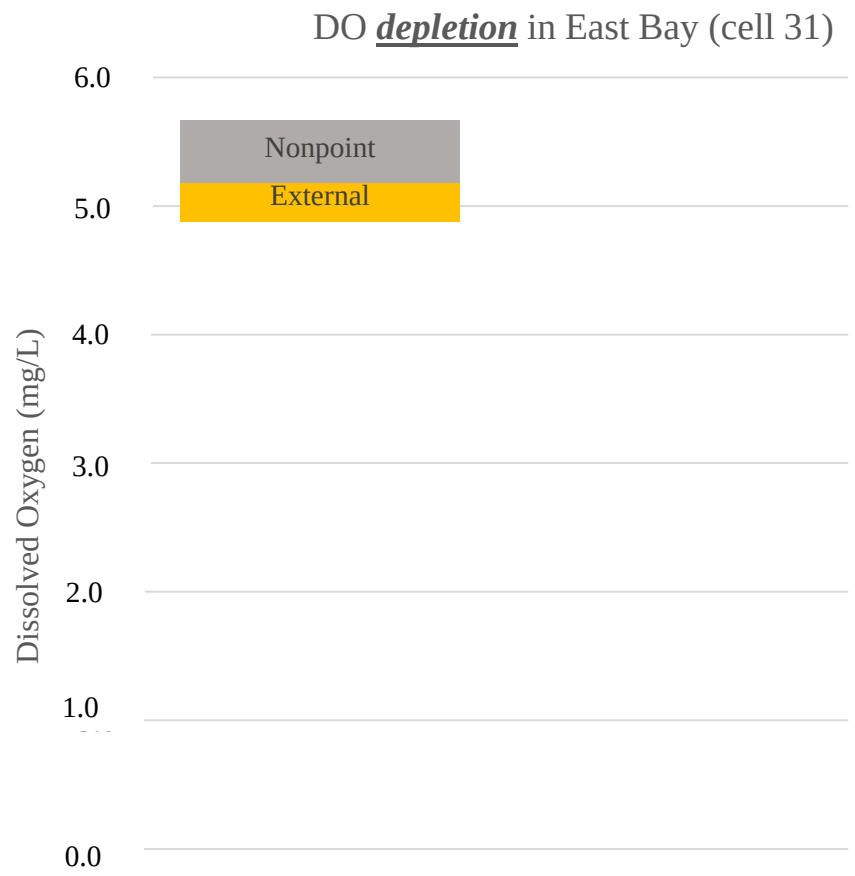



Nonpoint pollution from the Deschutes watershed and surrounding areas depletes oxygen by **0.49 mg/L** in cell 31.

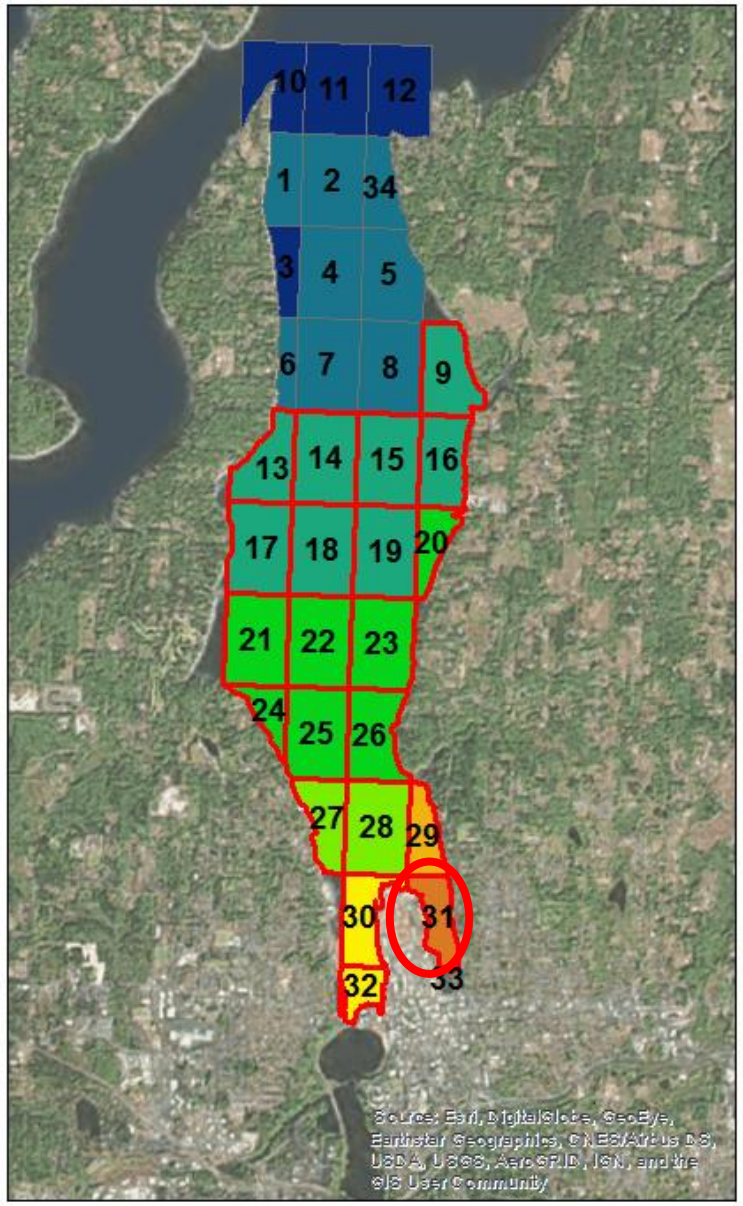
# Existing Conditions

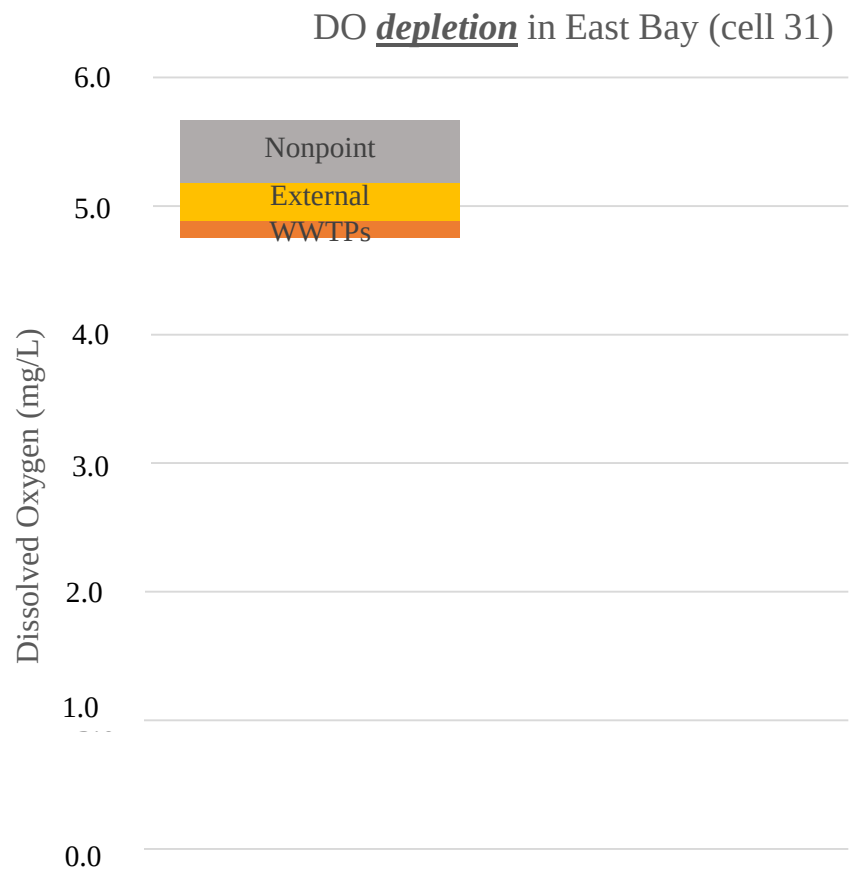



Nonpoint and point sources throughout the greater Puget Sound region contribute **0.30 mg/L of** oxygen depletion to cell 31.

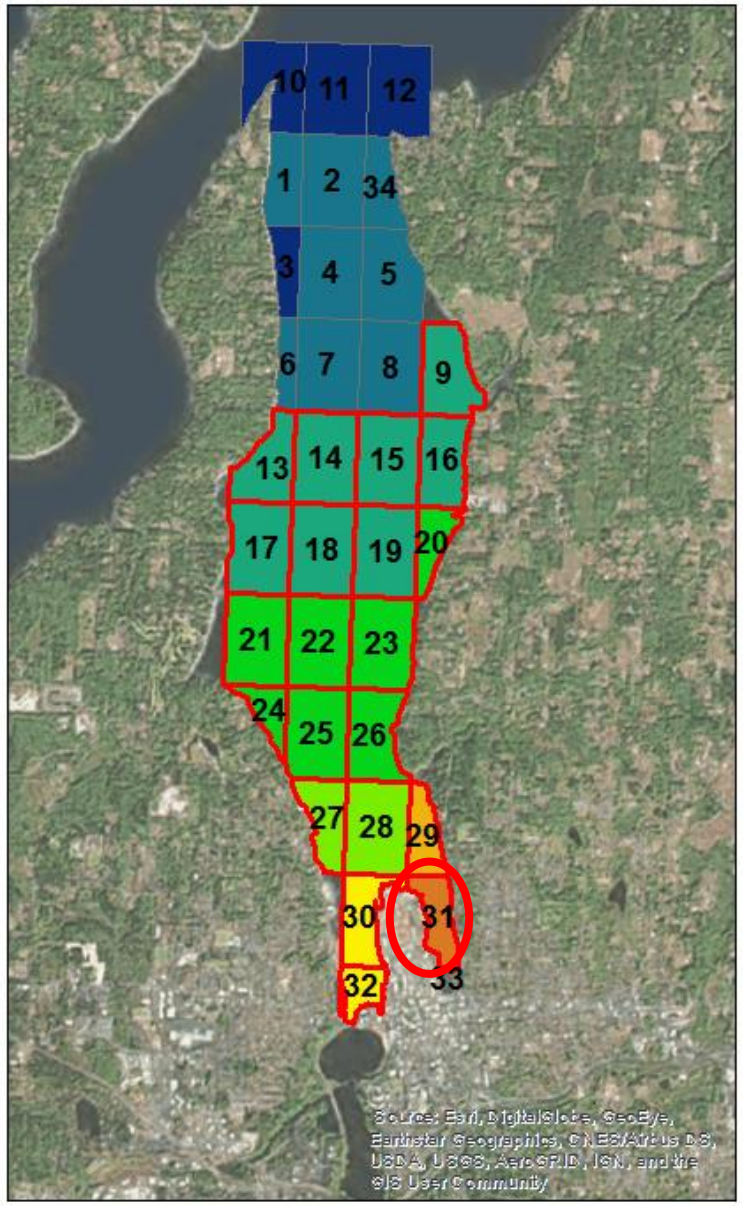
# Existing Conditions

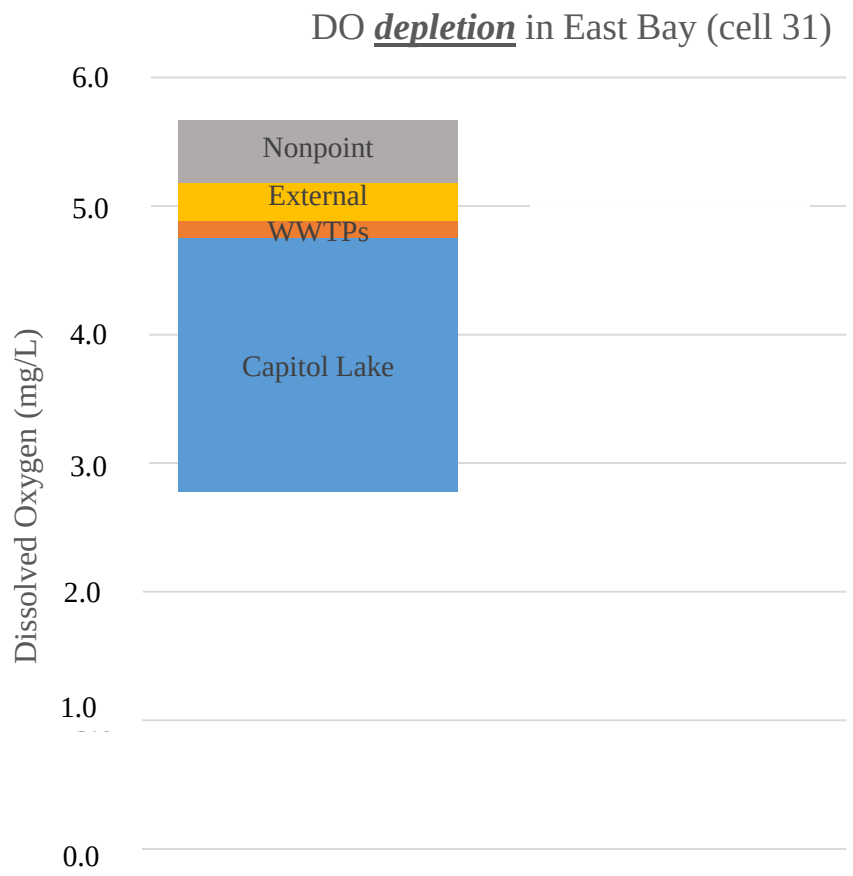



WWTPs that discharge directly into Budd Inlet deplete oxygen by **0.13 mg/L** in cell 31.

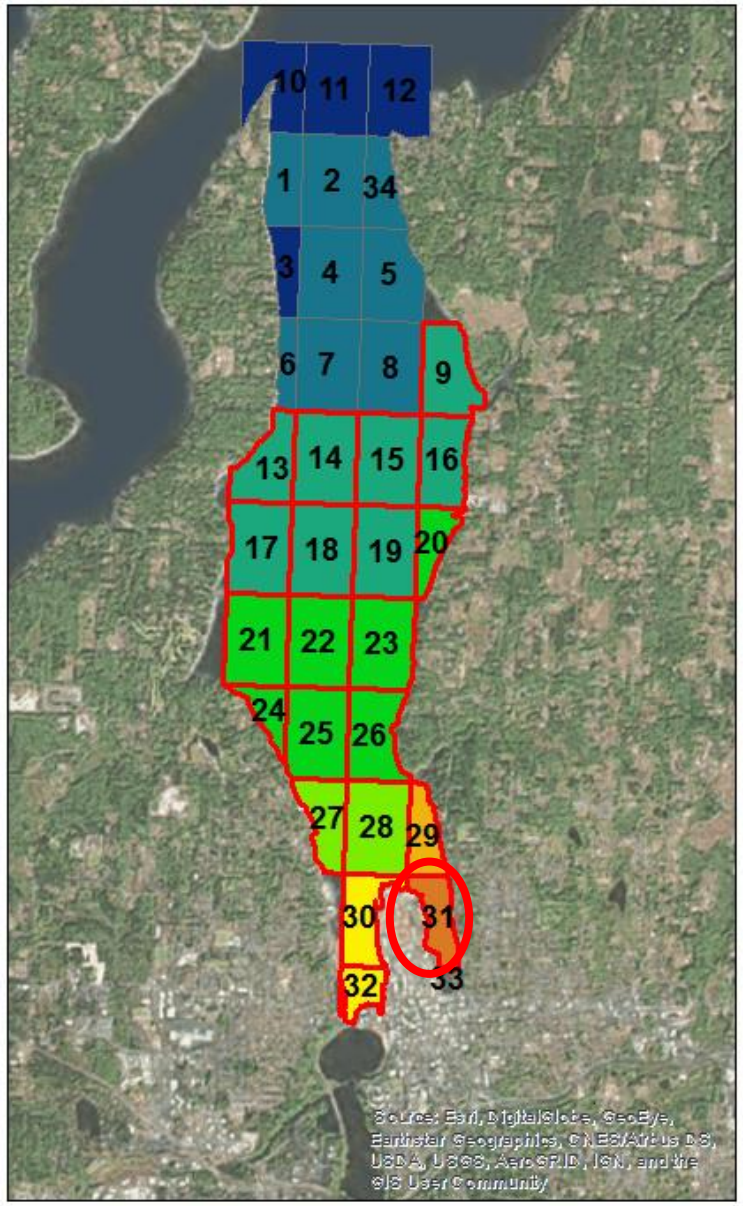
# Existing Conditions

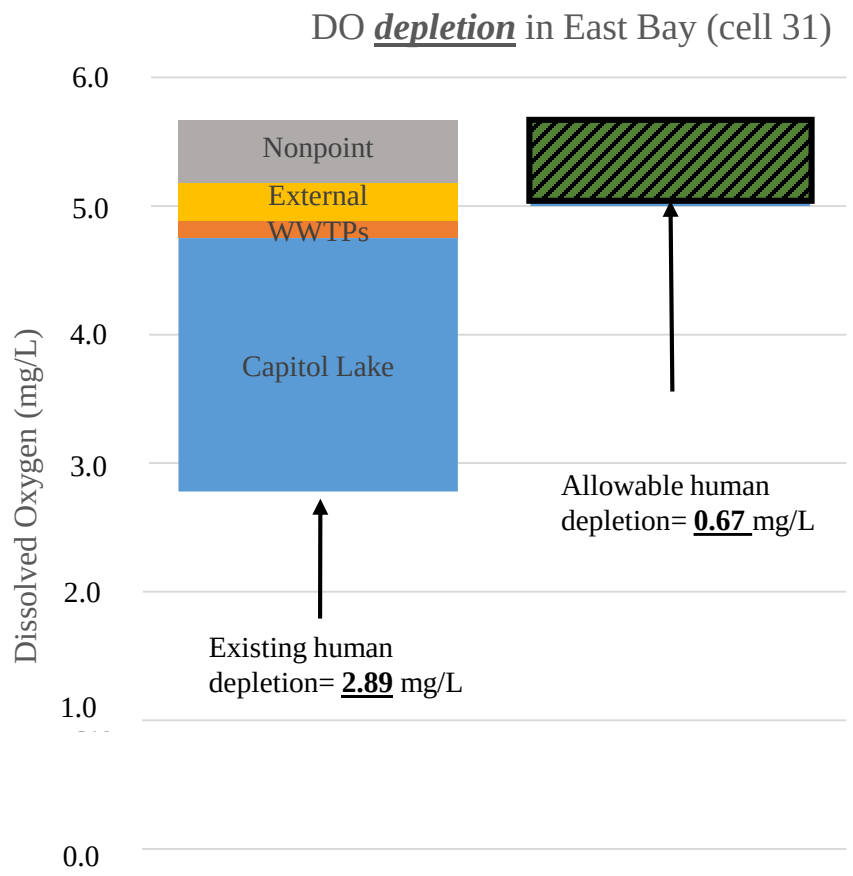


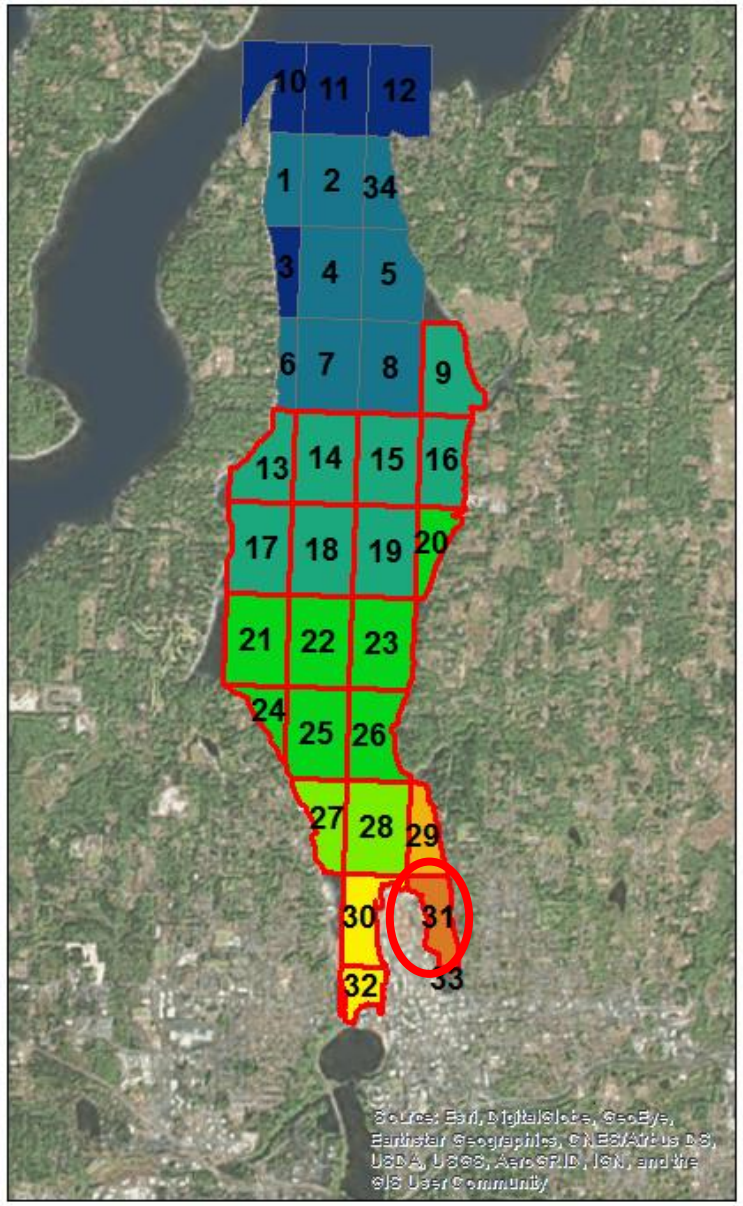




Capitol Lake depletes oxygen in cell 31 by **1.97 mg/L**.

# Existing Conditions



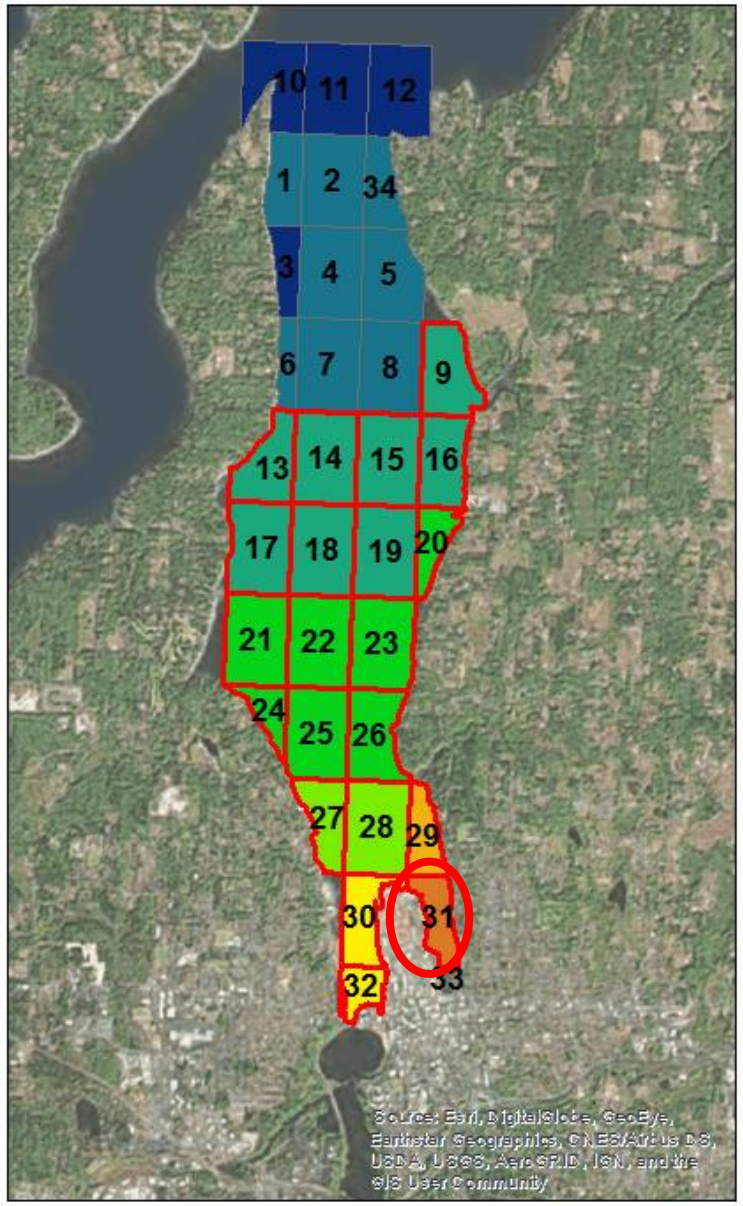


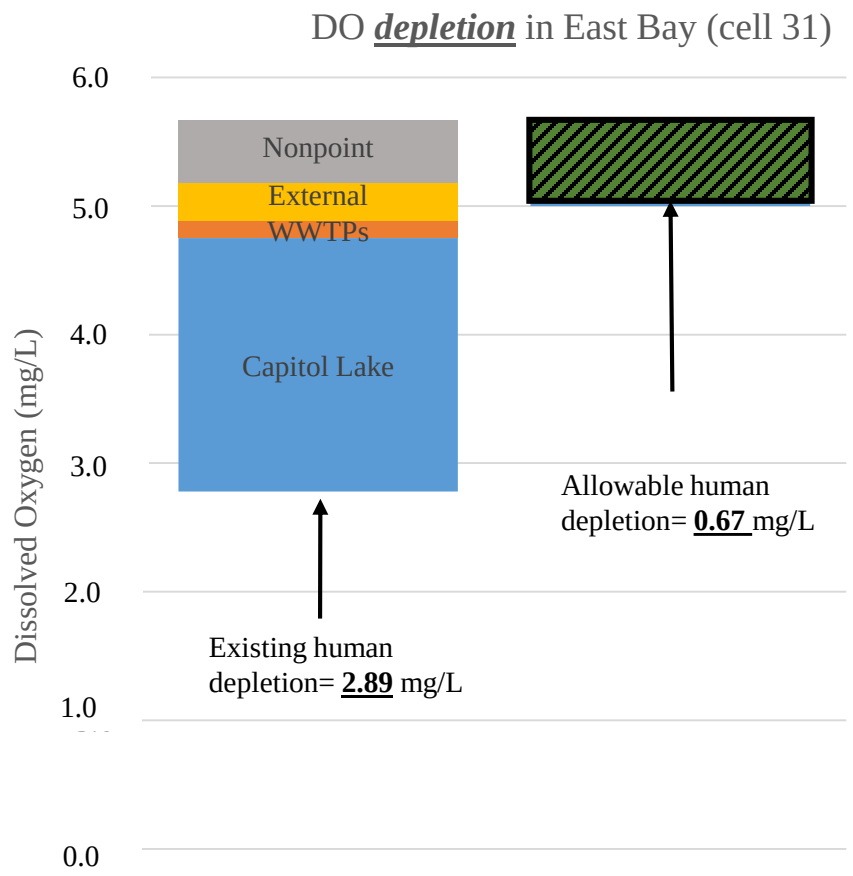

# Existing Conditions

***Takeaway:***

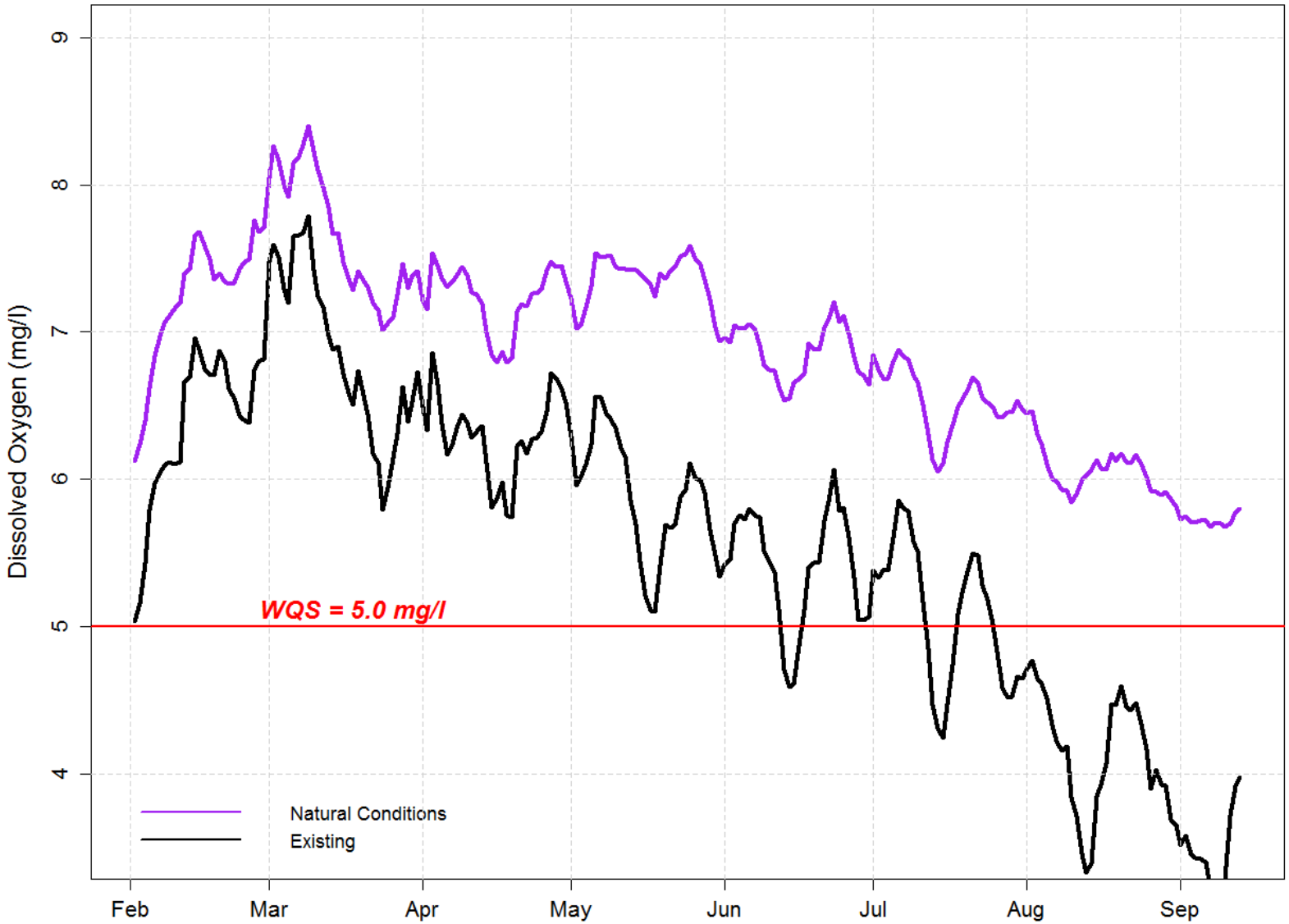
Significant improvements needed (even beyond DES) to meet standards.

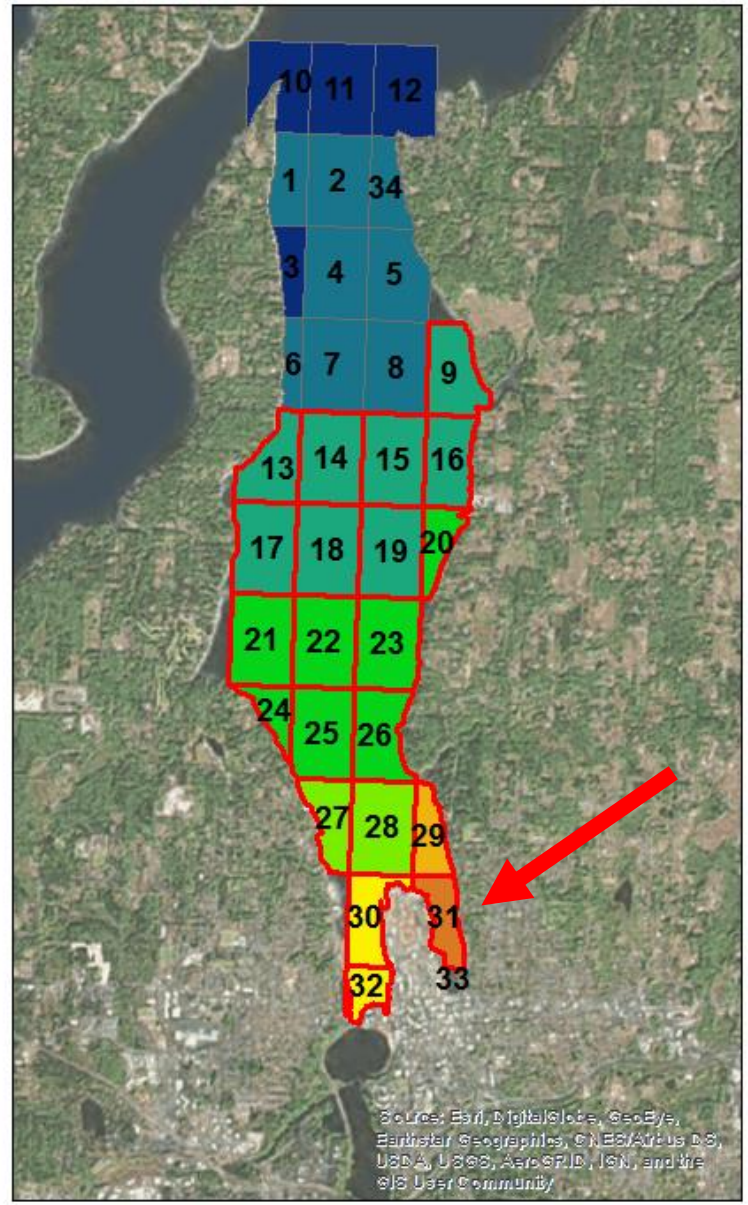
# Existing Conditions

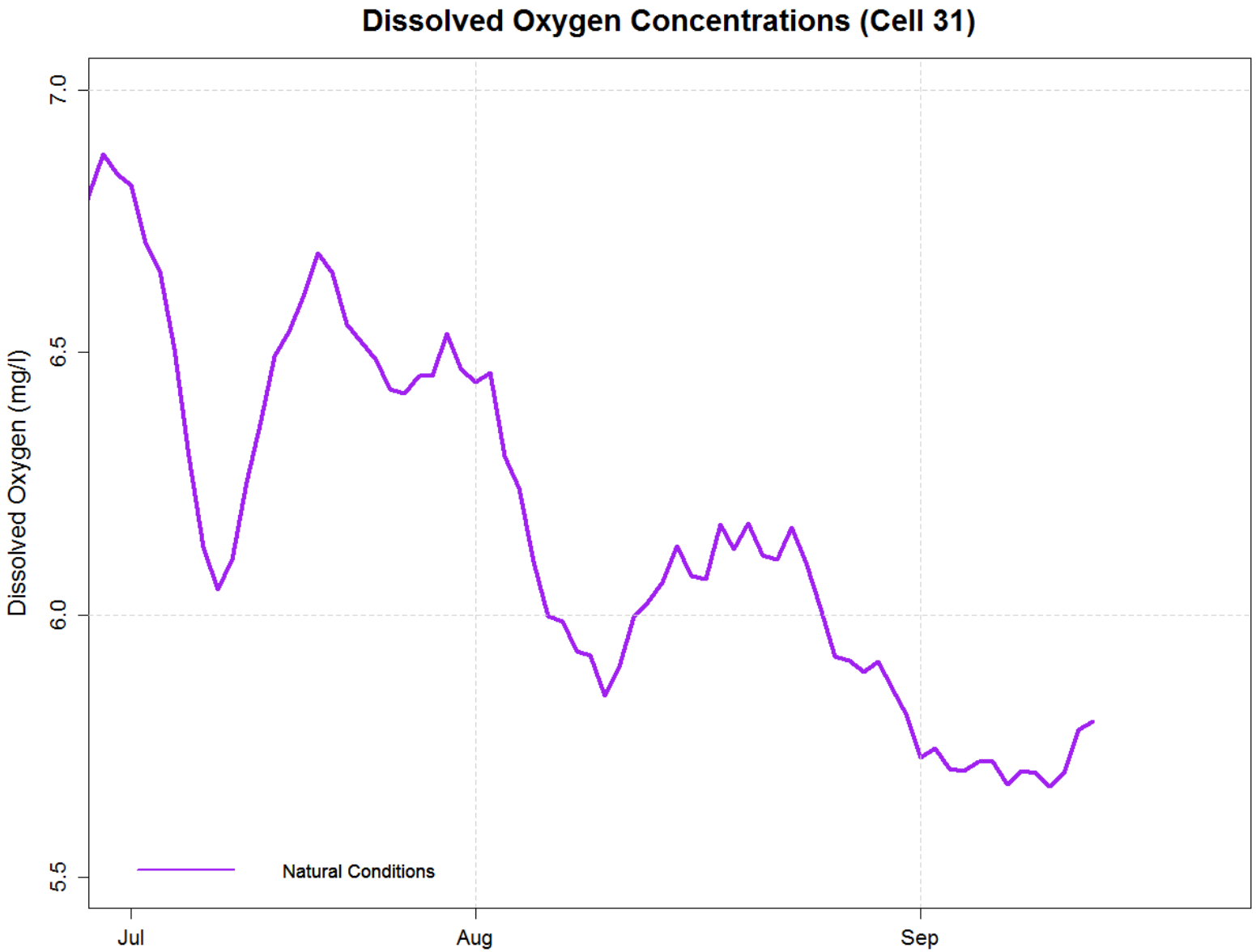


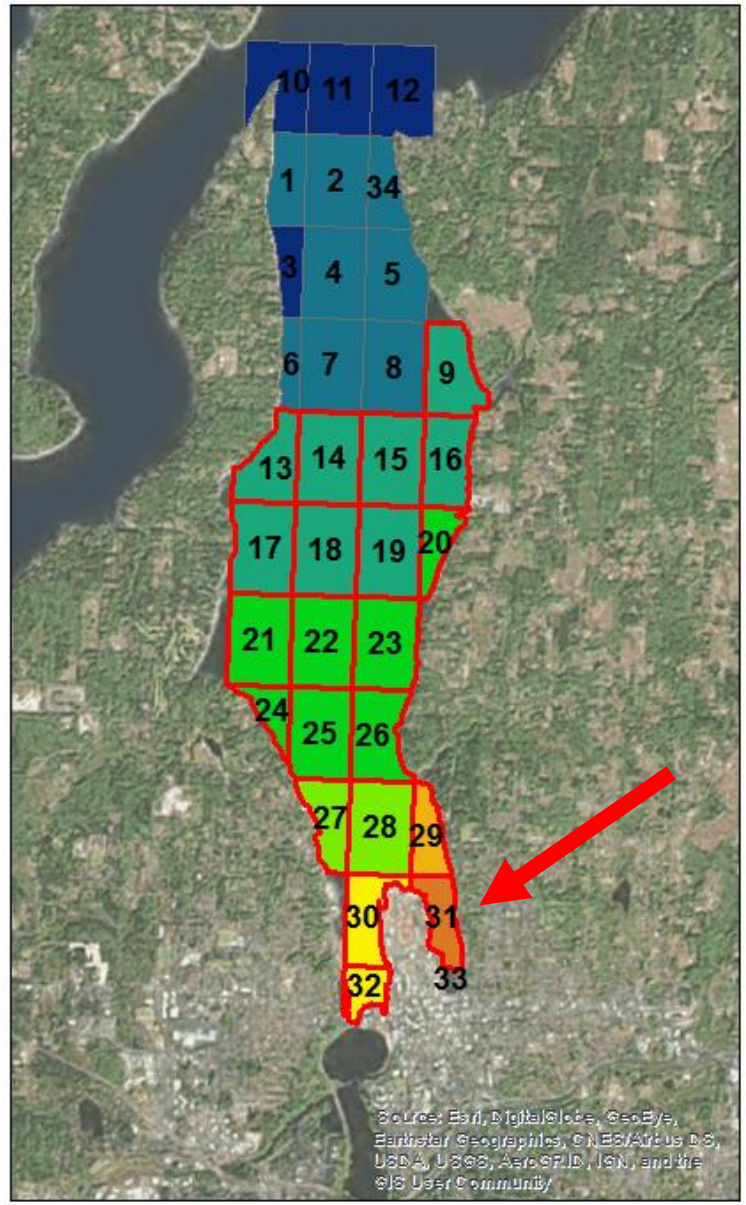



## Dissolved Oxygen Concentrations (Cell 31)




Dissolved Oxygen Concentrations (Cell 31)
Dissolved Oxygen (mg/l)
7.0
6.5
6.0
5.5
Jul
Aug
Sep
Natural Conditions


10
11
12
1
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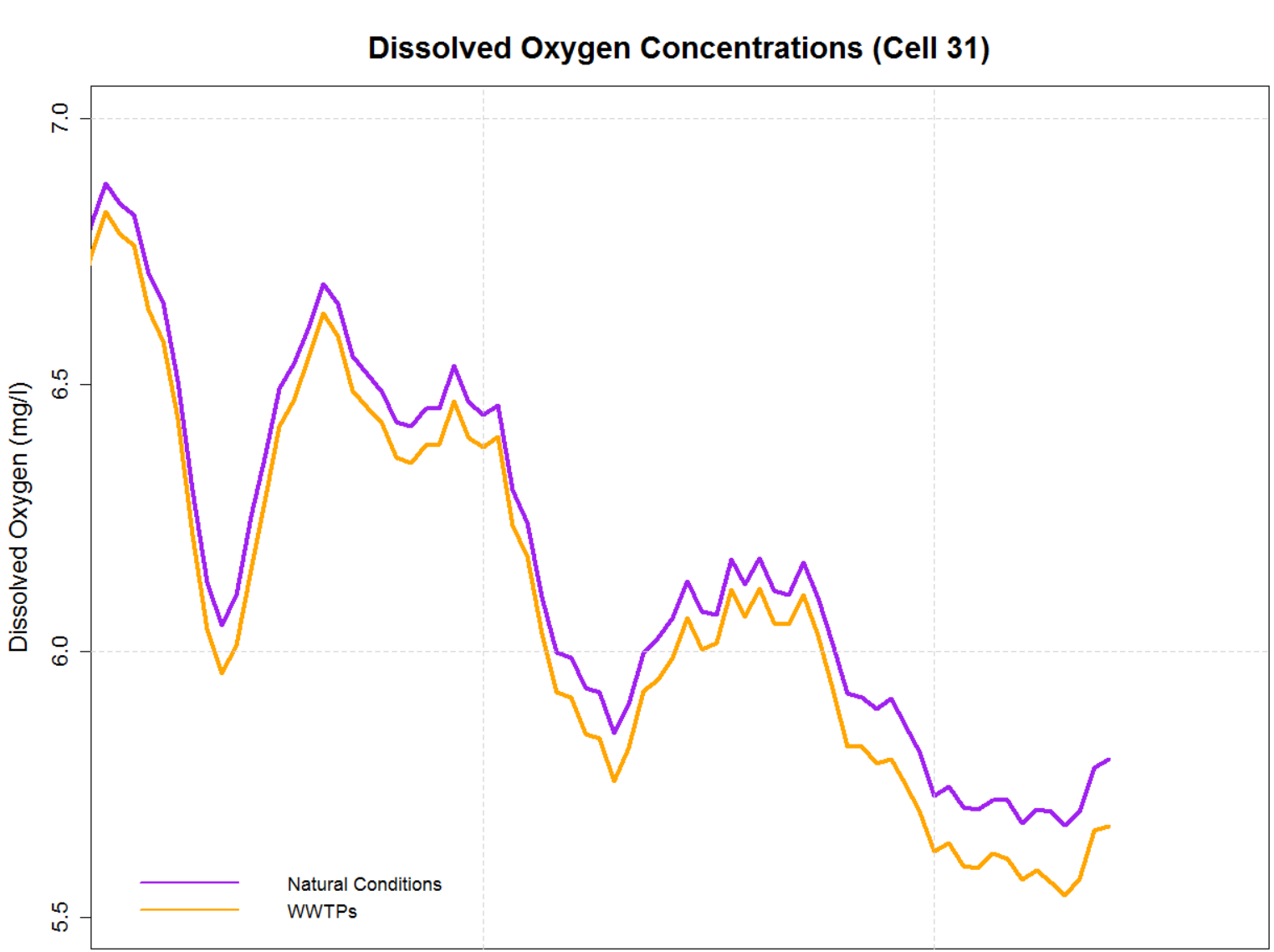
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community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Dissolved Oxygen (mg/l)
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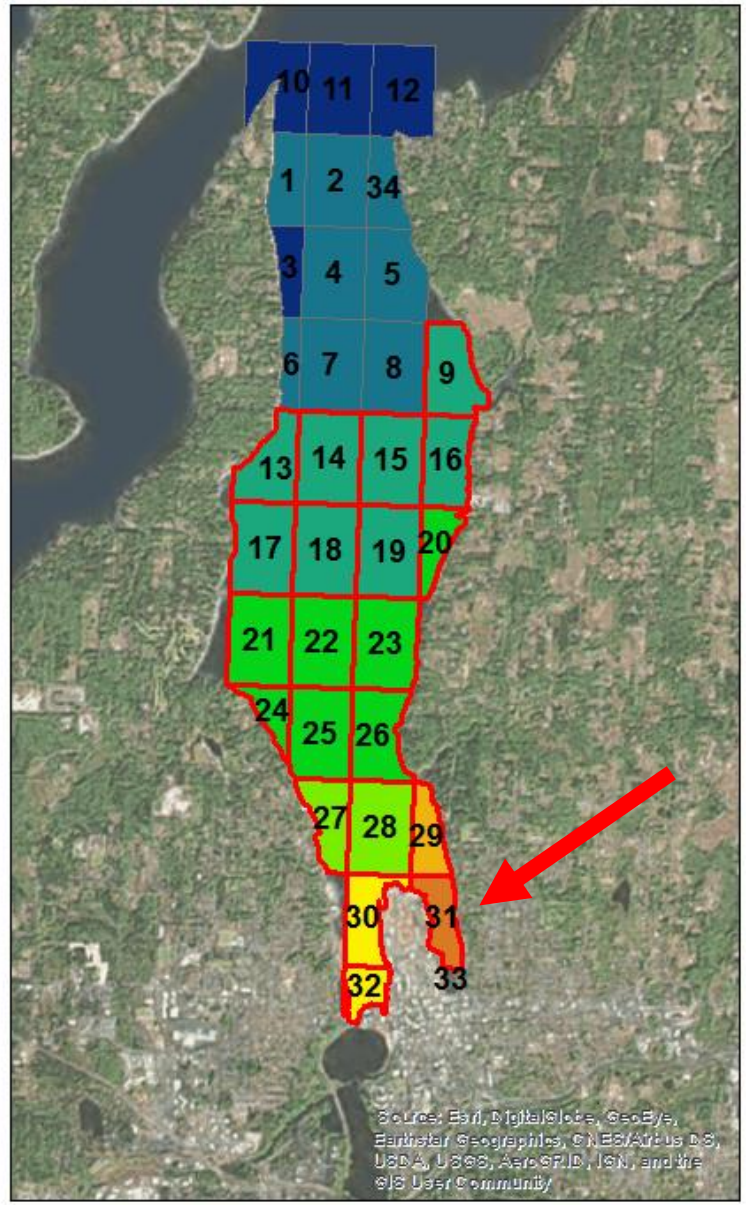
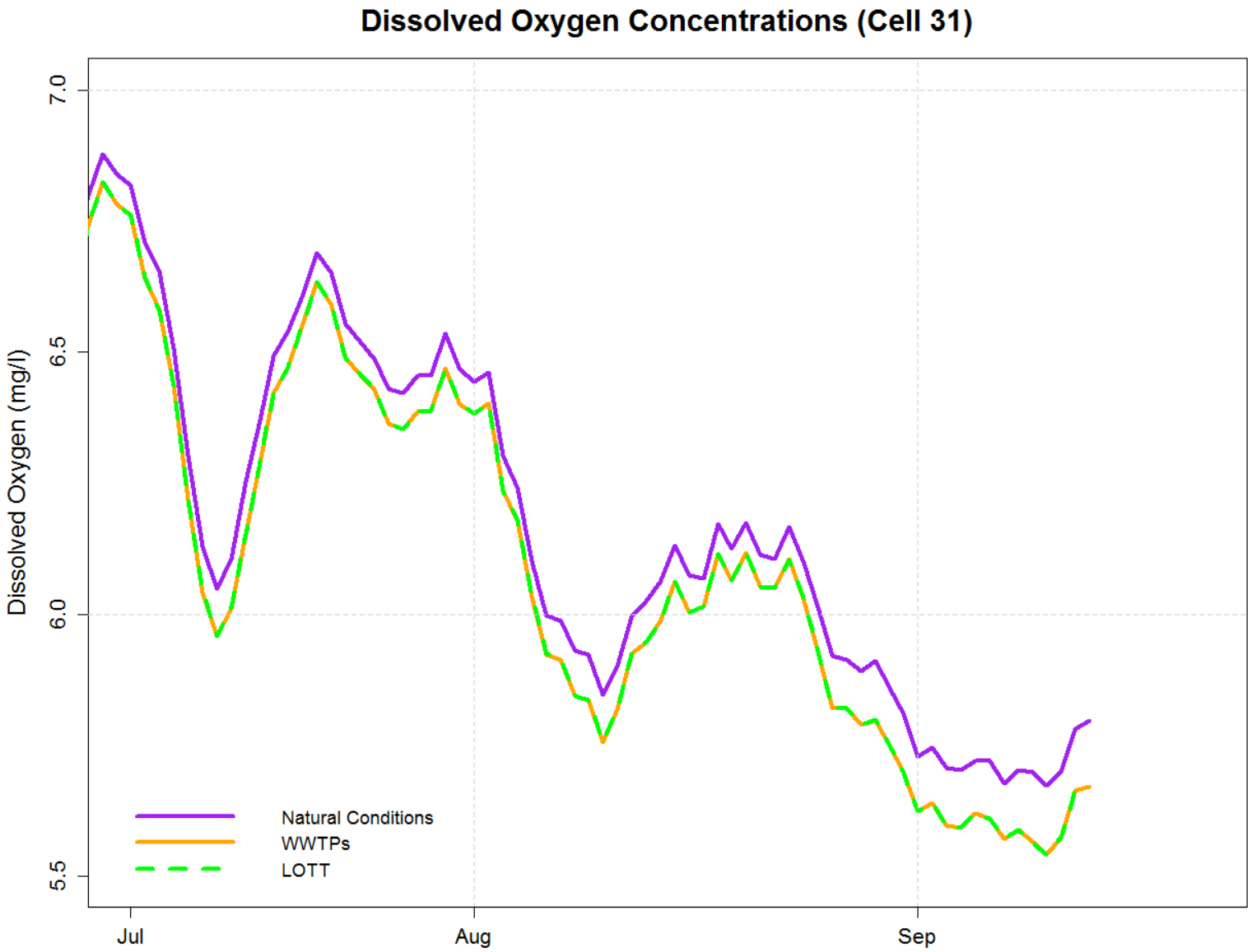
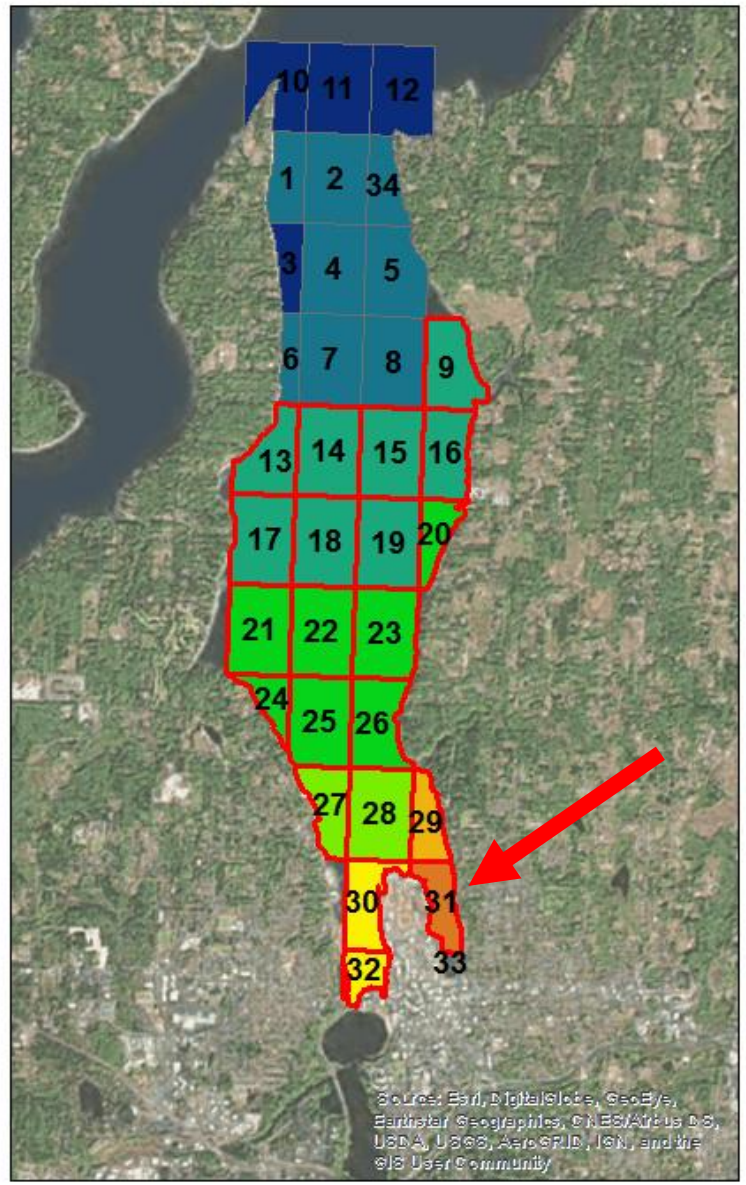
Natural Conditions
WWTPs


10 11 12
1 2 34
3 4 5
6 7 8 9
13 14 15 16
17 18 19 20
21 22 23
24 25 26
27 28 29
30 31
32 33
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

# Recent Modeling



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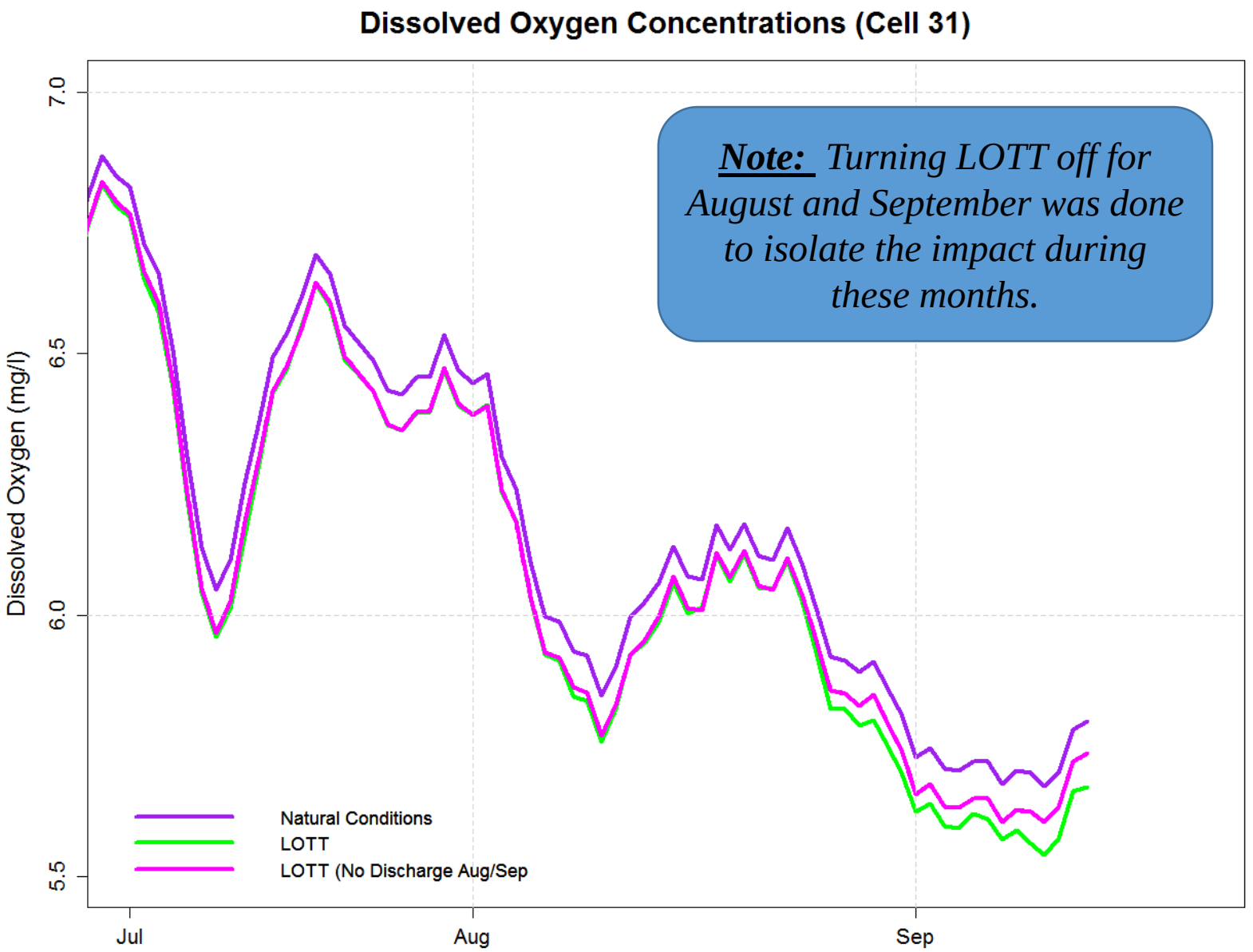


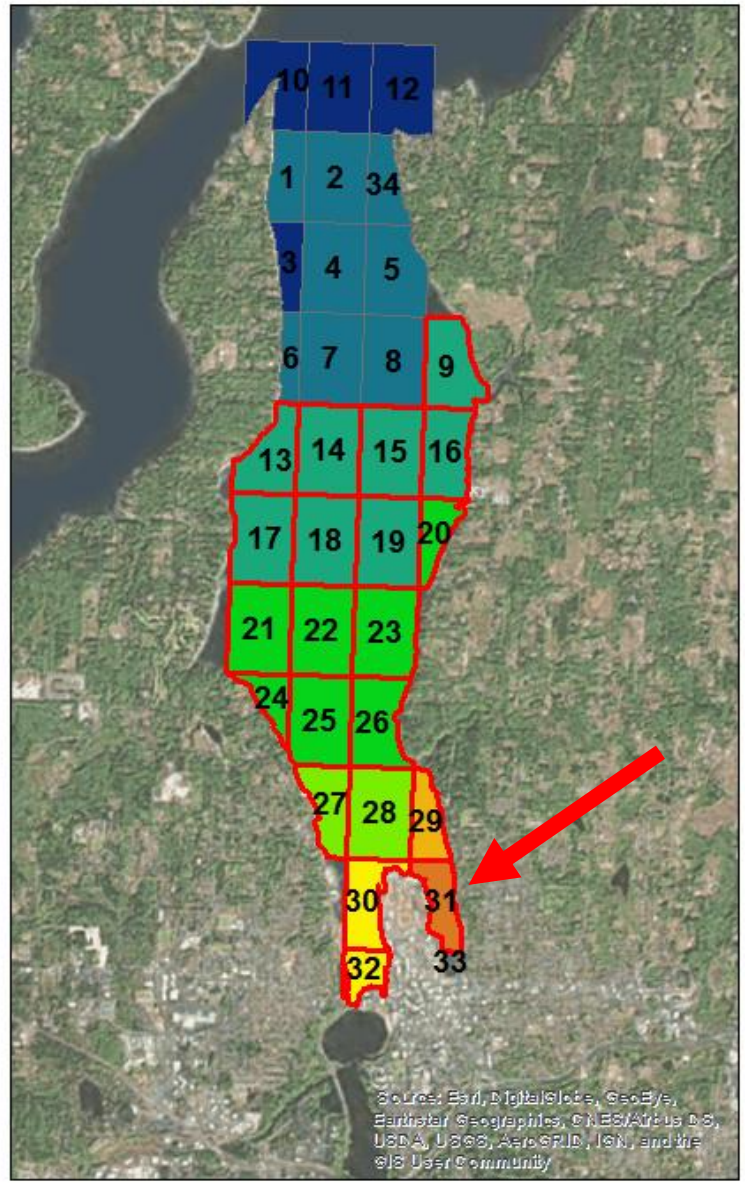

# Next Model Runs

*Goal: Determine combinations of allocations that meet standards.*

- Reduce nonpoint and external loading by various amounts.
- Reduce DES allocation.
- Vary LOTT's seasonal effluent limits.

# 2017 Timeline and Goals

*June: Modeling Phase 2 begins*

★*September: Modeling break – review/discuss*

*October: Modeling Phase 3 begins*

**Updates and opportunities for feedback.**

★*December: Draft Allocations*

* Additional opportunities for updates and feedback can be arranged by contacting Leanne Weiss.

DEPARTMENT OF ECOLOGY
State of Washington

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